REMARKS

Claims 1-16 are currently pending. Support for amendments to Claims 1, 2 and 10 is found in the Specification as filed, for example in original Claim 12. Support for new claims 20-22 is found in the English translation of the Specification as filed at pages 8 and 9. No new matter has been added herewith. The following addresses the substance of the Office Action.

Obviousness

Claims 1-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP01268764 (referred to herein as JP'764). The Examiner admitted that the JP'764 reference does not specifically disclose the claimed method to obtain such fine composite particles. However, the Examiner concluded that it would have been obvious to one having ordinary skill in the art to modify known methods of the prior art and substitute composite particles in the prior art to make noble metal/magnetic metal oxide composite fine particles, which would require only a routine skill.

The Applicants have amended Claims 1, 2 and 10 to specifically recite that the noble metal/magnetic metal oxide composite fine particles comprise magnetic metal oxide fine particles having a mean particle diameter of 1 nm to 1 μm and noble metal nanoparticles having a mean particle diameter of 1 to 500 nm affixed to the surface of the magnetic metal oxide fine particles. Thus, the amended claims specify the dimensions of the magnetic metal oxide fine particles and the noble metal nanoparticles, and they specify that that the noble metal nanoparticles are affixed to the surface of the magnetic metal oxide fine particles.

JP'764 teaches an antimicrobial pigment powder including an antimicrobial metal supported on an inorganic pigment or an extender pigment (hereinafter referred to as "substrate-forming particles"). The object of JP'764 is to prepare an antimicrobial pigment powder that contains an antimicrobial metal in an amount such that the color of the substrate-forming particles is not impaired, and has good dispersibility. In JP'764, it is stated that such an antimicrobial pigment powder can be produced by various methods. Nevertheless, JP'764 fails to disclose the specific sizes of the antimicrobial metal particles used, and merely discloses the manufacture thereof in the Examples.

In Examples 1 to 6 of JP'764, antimicrobial metals were adhered to substrate-forming particles by mixing and compacting components in a compacting mill (a ball mill). In Examples

7 to 15 of JP'764, the antimicrobial metals were adhered to the substrate-forming particles using electrolysis plating. However, there is no detailed disclosure of the resulting pigment powders in any of the examples. Examples 7 to 15 used copper metal as an antimicrobial metal. Copper metal is quite different from the noble metals used in the present invention. Examples 1 to 6 of JP'764 used either brass, silver, or copper as an antimicrobial metal. Specifically, Example 2 of JP'764 discloses that silver metal was adhered to magnetite with an average particle size of 0.05 μm as substrate-forming particles. Example 2 of JP'764 is the only example that is at all similar to the presently claimed invention in the sense that it uses silver, which corresponds to a noble metal of the present invention, and magnetite, which corresponds to a magnetic metal oxide of the present invention. However, as discussed below, notwithstanding the presence of Example 2, the disclosure of JP'764 does not render the presently claimed invention obvious.

Example 2 of JP'764 discloses that silver powder was adhered to magnetite by mixing and compacting using a ball mill. Such processing in a ball mill is performed to grind particles utilizing the energy of collision between balls, and is a technique typically applied to hard particles such as ceramics. In the case of such hard and rigid materials, particles with a particle size of several hundreds of nanometers are produced. However, in the case of maleable materials such as metals, this technique can only reduce particle size to about 1 μm at the smallest. Although this technique can change the shape of ductile metals, it hardly reduces the size of such metal particles (see **Appendix 1** (the second page (page 9), line 4 from the bottom, to the third page (page 10), line 12); and **Appendix 2** (the second page (page 1930), Fig. 2).

Referring to an excerpt from a Fukada Metal Foil and Powder Col, Ltd. catalog, which describes chemical reduction powders (**Appendix 3**, see 4th column under header "Mean particle diameter (μM)", 1st row), the silver powder used in Example 2 of JP'764 has an average particle size of 1.0-1.7 μm. Therefore, even though the silver powder was processed in a ball mill, the average particle size thereof could not have been smaller than about 1μm. In addition, when such a highly ductile metal is processed in a ball mill, the metal will change in shape but is usually unlikely to be supported on a carrier. For this reason, the result of Example 2 is only a mixture of silver metal and magnetite, rather than a product in which metal silver is affixed to or supported on magnetite. In contrast, the noble metal/magnetic metal oxide composite fine particles obtained according to the method of the claims of the invention have a structure in

which nano-sized noble metal particles are affixed to or supported on a magnetic metal oxide. Therefore, the noble metal/magnetic metal oxide composite fine particles obtained according to the methods of the claims are completely different from the pigment powder of Example 2 of JP'764, in terms of structure and the size of the metal to be supported.

The manufacturers of the brass powders of Examples 1 and 4, the silver powders of Examples 2 and 5, and the copper powders of Examples 3 and 6 were identified in the JP'764 reference. Thus, the applicants investigated the properties of these powders. Referring to **Appendix 3** and **Appendix 4** attached herewith, all of the silver, copper and brass particles had sizes on the order of microns. Hence, even if these antimicrobial metal particles were used and the preparation method of the Examples of JP'764 (i.e., processing using a ball mill) was employed, only particles on the order of microns in size could be obtained, as discussed above. Thus, these materials could not be used to produce the structures and sizes presently claimed. Moreover, there is no suggestion that the antimicrobial metal particles can be affixed to surface of the substrate-forming particles using the method of the Examples of JP'764. Accordingly, the antimicrobial metals for use in JP'764 are not nano-sized as presently claimed, as they would necessarily be on the order of microns. In addition, as described above, JP'764 does not specifically explain the resulting antimicrobial pigment powders, nor does it indicate the intention of preparing an antimicrobial pigment powder including supported nano-sized microbial metal particles.

In view of the amendments to the claims and the remarks above, the noble metal/magnetic metal oxide composite fine particles of the present invention would not have been attainable from the method disclosed in JP'764. The products obtained therefrom are also different from the products obtained in the present invention. Moreover, JP'764, as well as the prior art described in the Background the present specification, do not provide any reason to develop methods of producing the noble metal/magnetic metal oxide composite fine particles of the present invention. Accordingly, applicants respectfully request removal of the rejection of Claims 1 to 19 under 35 U.S.C. § 103(a).

Claims 17-19

Claims 17-19 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite because recitation of a use without any active, positive steps delimiting how the use is actually

practiced is indefinite. Claims 17-19 were also rejected under 35 U.S.C. § 101 because a claimed recitation of a use without setting forth steps involved in the process is not a proper process. Claims 17-19 are canceled, thereby rendering these rejections moot.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: _____

Raymond D. Smith
Registration No. 55,634
Agent of Record
Customer No. 20995
(949) 760-0404

5743531
080408